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10/619,103	07/14/2003	Junichi Ishizuka	F-7859	5800

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EXAMINER	
DEHGHAN, QUEENIE S	

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1791	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/619,103	ISHIZUKA, JUNICHI	
	Examiner	Art Unit	
	QUEENIE DEHGHAN	1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 February 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2-5,7,8,11,12,19 and 21-28* is/are pending in the application.

4a) Of the above claim(s) *3 and 4* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2,5,7,8,11,12,19 and 21-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 2, 5, 7,-8, 11-12, 19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 5 recites a tip part that has a radially outer dimension which is larger than a radially inner dimension of the said opening. The specification lacks support for this limitation. If the Examiner has erred in this, please point to page and line number where support can be found.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 2, 5, 7,-8, 11-12, 19, 21-28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Claim 5 recites a compression molding surface disposed on the terminal end in lines 8-9. Claim 5 also recites a tip part adjacent the terminal end (lines 17-18) and the tip part fits into the opening (line 21). Since the tip part is the part that is inserted into the opening, it is the part that comes in contact with the lens preform. Accordingly,

shouldn't this be the part that has the compression molding surface disposed on it? It is unclear how the terminal end has a molding surface while tip part that extends from the terminal end and that is in actual contact with the lens preform does not have the molding surface.

6. Furthermore, lines 19-20 of claim 5 recites the tip part has an outer dimension larger than opening. But it also recites the tip part is received in the opening. It is unclear how can a larger tip end fit into a smaller opening. It will be interpreted as being smaller, so that it can fit into the opening.

7. Claim 5 also recites in line 31, a terminal end of the first molding core within the opening. This contradicts the lines 20-21, which recites a tip end is within the opening and not the terminal end. The contradiction exists in several places in claim 5, such as line 42 and line 51. However, this is not an inclusive list. The applicant is advised to thoroughly search through claim 5 for such occurrences and make appropriate corrections.

8. Claim 7 recites the limitation "said end part" in line 2. There is insufficient antecedent basis for this limitation in the claim.

9. Claim 8 recites the limitation "said end part" in line 2. There is insufficient antecedent basis for this limitation in the claim.

10. Claim 12 recites the limitation "said end part" in line 2. There is insufficient antecedent basis for this limitation in the claim.

11. Claim 19 recites the limitation "said end part" in line 2. There is insufficient antecedent basis for this limitation in the claim.

12. Claim 21 tries to define a radial dimension of inner surface of the opening as being constant along a length of the opening. The length is limited by the terminal ends of the first and second cores "when a movable one of the first and second cores makes initial contact with the lens preform prior to application of the compressive forces". It is unclear how this defines the length. For instance, when the lens preform is placed on top of the second core and the first core is subsequently lowered for compression, the second core is "in initial contact with the lens preform". This does not provide a position for the first core and therefore does not clearly limit the length. However, it will be interpreted that the initial contact is made with the first core and therefore the length is defined by the position at which the first core initially touches the lens preform to the terminal end of the second core.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

1. Claims 2, 5, 7-8, 11-12, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeuchi et al. (JP-03-146427) in view of Budinski et al. (6,305,194). Ikeuchi discloses a molding process for producing an optical lens (abstract). The molding process comprising providing a first and second molding cores, each including a terminal end disposed with a compression molding surface and providing an intermediate restrictor comprising an opening defining an inner peripheral surface. Ikeuchi further teaches the first core comprises a tip part that fits into the opening of the restrictor and the second core comprises an outer dimension at the terminal end that is

radially larger than the inner dimension of the opening such that the restrictor is supported on the terminal end of the second core, wherein the axis of the second core is collinear with the axis of the restrictor (drawings 1, 4, 10 and 11). Additionally, Ikeuchi teaches positioning the lens preform and tip end into the opening, so that axis of the first core line up with the axis of the opening. Drawings 1 and 4 shows a receiving area that is greater than the area occupied by the lens preform, such that a gap exists between the periphery of the lens preform and the inner peripheral surface. Then the first mold is advanced to compression mold the lens preform between the first (4) and a second (3) molding cores and forces material of the lens preform outward to contact the inner peripheral surface, while the inner peripheral surface prevents the material from escaping in an outward direction perpendicular to the compression direction. As can be seen in the drawings, the radially inner dimension of the opening is constant along its entire length and the distance between ends of the restrictor facing the first and second cores is less than the sum of the thickness of the compressed lens preform and the tip end of the first core (drawing 11). Since this distance is comparably less, it would be reasonable to expect a lateral compression force directed radially inward is exerted on the material of the lens preform by the inwardly facing boundary of the restrictor upon further advancement of the first molding core.

2. However, Ikeuchi fails to disclose a molding surface with depression or projections or the specific step of heating. Budinski et al. teach a method for molding lens by heating and compressing a lens preform between molding cores. Budinski also teaches compression molding surfaces on the cores, wherein at least one of the

molding surfaces comprises depressions formed on the surfaces for transferring and molding a plurality of convex or concave elements (Fig. 5 col. 1 lines 40-49). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a molding core with depressions, such as Budinski, as a variation of the molding core surface of Ikeuchi in order to produce multiple micro lenses at the same time from just one preform for more efficiency. Also it would have been obvious to one of ordinary skill in the art at the time of the invention to have expected Ikeuchi to have also heated the lens preform as it is necessary to soften the glass in order to be molded, as demonstrated by Budinski.

3. Regarding claim 2, Budinski further teaches performing the compression of the preform in vacuum (col. 7 lines 4-6). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize vacuum in the process of Ikeuchi to assist in minimizing void formations in the lenses.

4. Regarding claim 7, Ikeuchi discloses an end part of the first molding core that has a smaller outer radius than the outermost radial dimension of the second molding core in drawing 1, 4, 10 and 11.

5. Regarding claim 8, Ikeuchi discloses the end part of the first molding core has a smaller outer radius than the outermost radius dimension of the first core.

6. Regarding claim 11, Ikeuchi discloses the restrictor is between the first and second cores.

7. Regarding claims 12 and 19, Ikeuchi discloses a restrictor that is positioned to restrict a flow of the lens preform during heating and compressing of the lens preform,

thereby forming lens with a shape and size of high accuracy. Budinski et al. also disclose the molding of a lens preform to closely conform to each of the said depressions or projections and thereby homogenize an optical performance of all the lens elements of the lens preform (col. 4 line 62 to col. 5 line 15), similar to Ikeuchi.

8. Claims 21-22, 25-26 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeuchi et al. (JP-03-146427) in view of Marechal et al. (4,481,023) and Budinski et al. (6,305,194). Ikeuchi discloses a molding process for producing an optical lens (abstract). The molding process comprising providing a first and second molding cores, each including a terminal end disposed with a compression molding surface and providing an intermediate restrictor comprising an opening defining an inner peripheral surface, wherein the first core comprises a tip part that fits into the opening of the restrictor (drawings 1, 4, 10 and 11). Additionally, Ikeuchi teaches setting a lens preform in the opening between the first and second cores and compression molding the lens between the cores while surrounded by the inner peripheral surface. Drawings 1 and 4 shows a receiving area that is greater than the area occupied by the lens preform, such that a gap exists between the periphery of the lens preform and the inner peripheral surface. The compression molding forces material of the lens preform outward to contact the inner peripheral surface, while the inner peripheral surface prevents the material from escaping in an outward direction perpendicular to the compression direction. As can be seen in the drawings, the radially inner dimension of the opening is constant along its entire length and the distance between ends of the restrictor facing the first and second cores is less than the sum of the thickness of the

compressed lens preform and the tip end of the first core (drawing 11). Since this distance is comparably less, it would be reasonable to expect a lateral compression force directed radially inward is exerted on the material of the lens preform by the inwardly facing boundary of the restrictor upon further advancement of the first molding core.

9. Ikeuchi is not specific as to heat applied or the material of the core. Marechal et al. teaches a compression molding process comprising of heating a first core, second core, restrictor and lens preform, wherein the cores are made of stainless steel (col. 6 lines 20-25, col. 7 line 59 to col. 8 line 1). It would have been obvious to one of ordinary skill in the art at the time of the invention to have applied the heat to the lens as well as the molding cores and restrictor of Ikeuchi to provide for a softened glass and to ensure thermal equilibrium between the glass and the parts that come in contact with the glass.

10. Ikeuchi also fails to disclose multiple depressions or projections. Budinski et al. teach a method for molding lens by heating and compressing a lens preform between molding cores, just as Ikeuchi does. Budinski also further teach compression molding surfaces on the cores, wherein at least one of the molding surfaces comprises depressions formed on the surfaces for transferring and molding a plurality of convex or concave elements (Fig. 5 col. 1 lines 40-49). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a molding core with depressions, such as Budinski, as a variation of the molding core surface of Ikeuchi in order to produce multiple micro lenses at the same time from just one preform.

11. Regarding claim 22, Ikeuchi does not specify the material of the lens preform as glass. Budinski teaches a micro-lens array comprising glass as a well known and common material (abstract, col. 1 lines 40-49). It would have been obvious to one of ordinary skill in the art at the time of the invention to have expected the Ikeuchi utilize glass as the material for the lens, as it has been demonstrated to be a well known and common material for producing lens array by compression molding processes.

12. Regarding claim 26, Ikeuchi does not express performing the molding in vacuum. Budinski teaches performing the compression of the preform in vacuum (col. 7 lines 4-6). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize vacuum in the process of Ikeuchi in order to minimize void formations in the lenses.

13. Regarding claim 28, Ikeuchi discloses the first core comprising a tip part that is inwardly displaced radially from a remainder of the first core.

14. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeuchi et al. (JP-03-146427) in view of Marechal et al. (4,481,023) and Budinski et al. (6,305,194), as applied to claim 21 above, in further view of Shimizu et al. (JP 60-171234). Ikeuchi fail to disclose the shape of the opening provided for by the restrictor. Shimizu teaches a molding core with a restrictor, wherein the opening bounded by the restrictor is circular (figure 2). It would have been obvious to one of ordinary skill in the art at the time of the invention to have employed to have employed a design choice such as a circular lens array depending on the desired application of the final lens product.

15. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeuchi et al. (JP-03-146427) in view of Marechal et al. (4,481,023) and Budinski et al. (6,305,194), as applied to claim 21 above, in further view of Ariyoshi et al. (2003/0072080). Ikeuchi fails to disclose the shape of the opening provided for by the restrictor. Ariyoshi teaches that a microlens array can be a variety of shapes including circular and rectangular depending on desired effect of the lens one skill in the art is trying to achieve, such as the viewing angle ([0070]). Clearly, to obtain a rectangular microlens array, the opening of the restrictor in a compression molding apparatus would naturally be rectangular also. It would have been obvious to one of ordinary skill in the art at the time of the invention to have employed to have employed a design choice such as a rectangular microlens array depending on the desired application of the final lens product.

16. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeuchi et al. (JP-03-146427) in view of Marechal et al. (4,481,023) and Budinski et al. (6,305,194), as applied to claim 21 above, in further view of Yoneda et al. (2005/0172671). Ikeuchi does not disclose cooling with nitrogen. Yoneda teaches a compression molding process wherein the glass lens element is cooled rapidly after molding by charging nitrogen gas into a surrounding part of the first and second cores and restrictor ([0088]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize nitrogen in the cooling of the lens of Ikeuchi after molding in order to expedite the cooling of the lens element.

Response to Arguments

13. Applicant's arguments, filed February 1, 2010, with respect to the rejection(s) of claim(s) 5 and 21 under Shimizu and Takano have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Ikeuchi.

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to QUEENIE DEHGHAN whose telephone number is

(571)272-8209. The examiner can normally be reached on Monday through Friday 9:00am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Queenie Dehghan/

Examiner, Art Unit 1791